CLAIM + DETAILED DESCRIPTION

[Claim(s)]
[Claim 1]An image forming means which forms a picture in recorded media, comprising,
An image forming device provided with a reception means which receives image data via
a communication line, and a print-data preparing means which creates print data for
carrying out drive control of the above-mentioned image forming means based on the
above-mentioned image data which this reception means received.
The 1st decision means that judges whether image data which the above-mentioned
reception means received is one of image data divided into plurality.
A memory measure memorized without providing the above-mentioned print-data
preparing means with the image data when this 1st decision means judges that the above-
mentioned image data is one of image data divided into plurality.
The 2nd decision means that judges whether image data memorized by this memory
measure is bundle ******.
A restoring means with which this 2nd decision means restores to image data before
dividing the above-mentioned image data when the above-mentioned image data judges it
as bundle ******, and the above-mentioned print-data preparing means is provided.

[Claim 2]The image forming device according to claim 1 with which the 2nd decision
means of the above is characterized by the above-mentioned image data judging whether
it is bundle ****** sequentially from a head.
[Claim 3]A reception means which receives image data characterized by comprising the
following sent via a communication line via an accumulation means which accumulates
this image data temporarily, An image data processing apparatus provided with a print-
data preparing means which creates print data for carrying out drive control of the image
forming means which forms a picture in recorded media based on the above-mentioned
image data which this reception means received.
The 1st decision means that judges whether image data accumulated in the above-
mentioned accumulation means is image data divided into plurality.
The 2nd decision means the image data judges it to be whether it is bundle ****** within
the above-mentioned accumulation means when this 1st decision means judges that the
above-mentioned image data is image data divided into plurality.
A receiving commanding means to which this 2nd decision means orders the above-
mentioned reception means reception of a mass of above-mentioned image data when the
above-mentioned image data judges it as bundle ******.

A restoring means which is restored to image data before dividing a mass of above-mentioned image data which the above-mentioned reception means received and with which the above-mentioned print-data preparing means is provided.

[Claim 4]The image data processing apparatus according to claim 3 with which the 2nd decision means of the above is characterized by the above-mentioned image data judging whether it is bundle ****** sequentially from a head within the above-mentioned accumulation means.
[Claim 5]An image forming device comprising:
The image data processing apparatus according to claim 3 or 4.
An image forming means which forms a picture in recorded media based on print data which the above-mentioned print-data preparing means of this image data processing apparatus created.

[Claim 6]It is the storage which memorized a computer program characterized by comprising the following for controlling an image forming device, Print-data creation processing which creates print data for carrying out drive control of the above-mentioned image forming means based on the above-mentioned image data which the above-mentioned reception means received, With the 1st judgment processing which judges whether image data which the above-mentioned reception means received is one of image data divided into plurality, and this 1st judgment processing, When it judges that the above-mentioned image data is one of image data divided into plurality, With memory processing memorized without providing the above-mentioned print-data creation processing with the image data, the 2nd judgment processing which judges whether image data memorized by this memory processing is bundle ******, and this 2nd judgment processing, A storage memorizing a computer program which performs restoration processing which is restored to image data before dividing the above-mentioned image data, and with which the above-mentioned print-data creation processing is provided when the above-mentioned image data judges it as bundle ******.
A reception means which receives image data via a communication line.
An image forming means which forms a picture in recorded media.

[Claim 7]It is the storage which memorized a computer program characterized by comprising the following for controlling an image forming device, Print-data creation processing which creates print data for carrying out drive control of the above-mentioned image forming means based on the above-mentioned image data which the above-mentioned reception means received, With the 1st judgment processing which judges whether image data accumulated in the above-mentioned accumulation means is image data divided into plurality, and this 1st judgment processing, When it judges that the above-mentioned image data is image data divided into plurality, With the 2nd judgment processing which judges whether it is bundle ****** within the above-mentioned accumulation means, and this 2nd judgment processing, [the image data] Reception instruction processing which orders the above-mentioned reception means reception of a mass of above-mentioned image data when the above-mentioned image data judges it as bundle ******, A storage memorizing a computer program which performs restoration processing which is restored to image data before dividing a mass of above-mentioned

image data which the above-mentioned reception means received, and with which the above-mentioned print-data creation processing is provided.

A reception means which receives image data sent via a communication line via an accumulation means which accumulates this image data temporarily.

An image forming means which forms a picture in recorded media.

[Detailed Description of the Invention]

[0001]

[Field of the Invention]An image forming device with which this invention forms a picture in recorded media based on the image data sent via the communication line, It is related with the image forming device, image data processing apparatus, and storage which have the feature in processing when the image data divided into plurality is received in detail about the storage for realizing the image data processing apparatus which processes the above-mentioned image data and its image forming device, or an image data processing apparatus.

[0002]

[Description of the Prior Art]The image forming means which forms a picture in recorded media conventionally, and the reception means which receives image data via a communication line, Based on the above-mentioned image data which this reception means received, the image forming device provided with the print-data preparing means which creates the print data for carrying out drive control of the above-mentioned image forming means is considered. In this kind of image forming device, reception means, such as a receive buffer, receive image data via a communication line, and the print data for carrying out drive control of the image forming means of printer engine etc. are created by print-data preparing means, such as CPU. Then, the picture corresponding to the image data which the image forming means formed the picture in recorded media based on these print data, and was received via the above-mentioned communication line as a result is obtained. Personal-computer-communications art, such as the Internet, is progressing by leaps and bounds in recent years. Then, the image forming device which receives image data using an E-mail etc. is also considered.

[0003]

[Problem to be solved by the invention]However, if general image data is made into an E-mail as it is, it will become very big data as an E-mail. For this reason, if image data is transmitted and received as an E-mail as it is, it may interfere with the whole communications system. Then, image data is divided into plurality, it sends as an E-mail, and reducing the data volume of each E-mail is also considered. However, with image forming devices, such as a printer, the picture corresponding to the received E-mail will be scatteringly formed in this case.

[0004]The original picture was what kind of thing, or aim may also stop for this reason, attaching depending on the case. In particular, in the Internet, the provider etc. who relay an E-mail are not fixed and an E-mail is sent through various courses. Therefore, an order of the divided image data may interchange or other E-mails may interrupt between the divided image data. In this case, it becomes much more difficult to restore the original

picture.

[0005]Then, in the image forming device and image data processing apparatus which receive the divided image data via a communication line, this invention was made for the purpose of enabling restoration of the original picture easily.

[0006]

[The means for solving a technical problem and an effect of the invention] [the invention according to claim 1 made since the above-mentioned purpose was attained] The image forming means which forms a picture in recorded media, and the reception means which receives image data via a communication line, The print-data preparing means which creates the print data for carrying out drive control of the above-mentioned image forming means based on the above-mentioned image data which this reception means received, The 1st decision means that judges whether it is preparation ************** and the image data which the above-mentioned reception means received is one of the image data divided into plurality, When this 1st decision means judges that the above-mentioned image data is one of the image data divided into plurality, The memory measure memorized without providing the above-mentioned print-data preparing means with the image data, When the above-mentioned image data judges it as bundle ****** in the 2nd decision means that judges whether the image data memorized by this memory measure is bundle ******, and this 2nd decision means, It restores to the image data before dividing the above-mentioned image data, and is characterized by having a restoring means with which the above-mentioned print-data preparing means is provided.

[0007]When a reception means receives the divided image data via a communication line in this invention constituted in this way, [the 1st decision means] It judges that that image data is one of the image data divided into plurality, and a memory measure is memorized at this time, without providing a print-data preparing means with that image data. And the 2nd decision means judges whether the image data memorized by the memory measure is bundle ******, and when the above-mentioned image data judges it as bundle ******, the 2nd decision means reverts to the image data before dividing the above-mentioned image data, and provides a print-data preparing means with a restoring means. Then, a print-data preparing means creates the print data for carrying out drive control of the image forming means based on the image data restored [above-mentioned].

[0008]Thus, in this invention, image data received via a reception means memorized by a bundle ******** memory measure, reverted to image data before division at the bundle ****** time, and uses for drive control of an image forming means. For this reason, in this invention, by an image forming means, a picture can be formed for every bundle of image data, and restoration of the original picture is attained easily.

[0009]In this invention, a memory measure which memorizes divided image data, and a restoring means restored to image data before dividing the image data are included in an image forming device by one. For this reason, in this invention, the image forming device itself can restore image data, without borrowing help, such as other computers. Therefore, in this invention, other computers can be released from processing in connection with restoration of a picture, and processing efficiency of the whole communications system can be raised.

[0010]Various forms can be considered to a mass of image data in this invention. For example, when new-line data showing numbers and paragraphs of Drawings, such as

"drawing 1" and "drawing 2", etc. are often also as a bundle in image data further about all the image data often also as a bundle divided in 1 page, it is good also considering a range divided with those data as a bundle. Image data in this invention may be the data described not only by the so-called data of graphics files, such as FAX data, but by page description language etc.

[0011]As for the invention according to claim 2, in addition to the composition according to claim 1, the 2nd decision means of the above is characterized by the above-mentioned image data judging whether it is bundle ****** sequentially from a head. In this invention, in the 2nd decision means, image data judges whether it is bundle ****** sequentially from a head, and a restoring means restores image data sequentially from a head at the time of bundle ******. For this reason, moreover in this invention, a picture can be formed sequentially from a head for every bundle of image data by an image forming means. Therefore, in addition to the effect of the invention according to claim 1, an effect that restoration of the original picture is attained still more easily arises.

[0012]Since a picture is formed sequentially from a head, even if it makes still smaller a mass of above-mentioned unit, it can fully restore. For example, by making predetermined length or a predetermined line of a picture into a bundle, even if it forms one by one by an image forming means, the original picture can be restored easily. In this case, a storage capacity needed for a memory measure can be reduced, and a manufacturing cost of an image forming device can be reduced good.

[0013]The invention according to claim 3 is provided with the following.

A reception means which receives image data sent via a communication line via an accumulation means which accumulates this image data temporarily.

A print-data preparing means which creates print data for carrying out drive control of the image forming means which forms a picture in recorded media based on the above-mentioned image data which this reception means received.

The 1st decision means that judges whether it is the image data processing apparatus which it had, and image data accumulated in the above-mentioned accumulation means is image data divided into plurality, When this 1st decision means judges that the above-mentioned image data is image data divided into plurality, When the above-mentioned image data judges it as bundle ****** in the 2nd decision means the image data judges it to be whether it is bundle ****** within the above-mentioned accumulation means, and this 2nd decision means, A restoring means which is restored to image data before dividing a mass of above-mentioned image data which a receiving commanding means which orders the above-mentioned reception means reception of a mass of above-mentioned image data, and the above-mentioned reception means received and with which the above-mentioned print-data preparing means is provided.

[0014]In this invention constituted in this way, a reception means receives image data sent via a communication line via an accumulation means which accumulates the image data temporarily. When image data divided into plurality is accumulated in an accumulation means, the 1st decision means judges that the image data is image data divided into plurality, and, as for the 2nd decision means, the image data judges then whether it is bundle ****** within an accumulation means. And when the above-mentioned image data judges it as bundle ******, a receiving commanding means orders a reception means reception of a mass of above-mentioned image data, and the 2nd

decision means, [a restoring means] It restores to image data before dividing a mass of above-mentioned image data which a reception means received, and provides for a print-data preparing means. Then, a print-data preparing means creates print data for carrying out drive control of the image forming means based on image data restored [above-mentioned].

[0015]thus, image data accumulated in an accumulation means in this invention -- bundle ******** -- it holds to the accumulation means, the image data was received via a reception means at the bundle ****** time, and it restored to image data before division, and uses for drive control of an image forming means. For this reason, if drive control of the image forming means is carried out by print data created by this invention, that image forming means will form a picture for every bundle of image data, and restoration of the original picture will be attained easily.

[0016]Various forms can be considered to a mass of image data in this invention. For example, when new-line data showing numbers and paragraphs of Drawings, such as "drawing 1" and "drawing 2", etc. are often also as a bundle in image data further about all the image data often also as a bundle divided in 1 page, it is good also considering a range divided with those data as a bundle. Image data in this invention may be the data described not only by the so-called data of graphics files, such as FAX data, but by page description language etc.

[0017]As for the invention according to claim 4, in addition to the composition according to claim 3, the 2nd decision means of the above is characterized by the above-mentioned image data judging whether it is bundle ****** sequentially from a head within the above-mentioned accumulation means. In this invention, in the 2nd decision means, image data judges whether it is bundle ****** sequentially from a head within an accumulation means, and a receiving commanding means orders it reception of image data sequentially from a head at the time of bundle ******. For this reason, if drive control of the image forming means is carried out by print data created by this invention, moreover, that image forming means will form a picture sequentially from a head for every bundle of image data. Therefore, in addition to the effect of the invention according to claim 3, an effect that restoration of the original picture is attained still more easily arises.

[0018]Since a picture is formed sequentially from a head, even if it makes still smaller a mass of above-mentioned unit, it can fully restore. For example, by making predetermined length or a predetermined line of a picture into a bundle, even if it forms one by one by an image forming means, the original picture can be restored easily. In this case, quantity of image data accumulated in an accumulation means can be reduced, and other communications using that accumulation means can be performed still more smoothly.

[0019]The image forming device according to claim 5 is characterized by having an image forming means which forms a picture in recorded media based on print data which the above-mentioned print-data preparing means of the image data processing apparatus according to claim 3 or 4 and this image data processing apparatus created.

[0020]That is, an image forming device of this invention equips recorded media with an image forming means which forms a picture based on print data which a print-data preparing means created, and the image data processing apparatus according to claim 3 or 4 provided with the print-data preparing means is built into one. For this reason, in this

invention, the image forming device itself can restore image data, without borrowing help, such as other computers. Therefore, in this invention, in addition to the effect of the invention according to claim 3 or 4, other computers are released from processing in connection with restoration of a picture, and an effect that processing efficiency of the whole communications system can be raised further arises.

[0021]moreover -- this invention -- image data -- the inside of an accumulation means -- bundle ********, since the image data is not received, In addition to the same effect as the invention according to claim 1 or 2, a storage capacity needed for an image forming device is reduced further, and an effect that the manufacturing cost can be reduced further arises.

[0022]A reception means in which the invention according to claim 6 receives image data via a communication line, It is the storage which memorized a computer program for controlling an image forming device which equipped recorded media with an image forming means which forms a picture, Print-data creation processing which creates print data for carrying out drive control of the above-mentioned image forming means based on the above-mentioned image data which the above-mentioned reception means received, With the 1st judgment processing which judges whether image data which the above-mentioned reception means received is one of image data divided into plurality, and this 1st judgment processing, When it judges that the above-mentioned image data is one of image data divided into plurality, With memory processing memorized without providing the above-mentioned print-data creation processing with the image data, the 2nd judgment processing which judges whether image data memorized by this memory processing is bundle ******, and this 2nd judgment processing, When the above-mentioned image data judges it as bundle ******, it restores to image data before dividing the above-mentioned image data, and is characterized by memorizing a computer program which performs restoration processing with which the above-mentioned print-data creation processing is provided.

[0023]For this reason, if the above-mentioned image forming device is controlled based on a computer program memorized by this invention, Print-data creation processing equivalent to the print-data preparing means according to claim 1, the 1st decision means, a memory measure, the 2nd decision means, and a restoring means, the 1st judgment processing, memory processing, the 2nd judgment processing, and restoration processing can be performed. Therefore, in this invention, an effect that the same operation and effect as the invention according to claim 1 can be generated by various computers etc. which control an image forming means of an image forming device arises. If the limitation same to the 2nd judgment processing of this invention as the 2nd decision means according to claim 2 is given, the same operation and effect as the invention according to claim 2 can be generated.

[0024]A reception means which receives image data to which the invention according to claim 7 was sent via a communication line via an accumulation means which accumulates this image data temporarily, It is the storage which memorized a computer program for controlling an image forming device which equipped recorded media with an image forming means which forms a picture, Print-data creation processing which creates print data for carrying out drive control of the above-mentioned image forming means based on the above-mentioned image data which the above-mentioned reception means received, With the 1st judgment processing which judges whether image data

accumulated in the above-mentioned accumulation means is image data divided into plurality, and this 1st judgment processing, When it judges that the above-mentioned image data is image data divided into plurality, With the 2nd judgment processing which judges whether it is bundle ****** within the above-mentioned accumulation means, and this 2nd judgment processing, [the image data] Reception instruction processing which orders the above-mentioned reception means reception of a mass of above-mentioned image data when the above-mentioned image data judges it as bundle ******, It restores to image data before dividing a mass of above-mentioned image data which the above-mentioned reception means received, and is characterized by memorizing a computer program which performs restoration processing with which the above-mentioned print-data creation processing is provided.

[0025]For this reason, if the above-mentioned image forming device is controlled based on a computer program memorized by this invention, Print-data creation processing equivalent to the print-data preparing means according to claim 3, the 1st decision means, the 2nd decision means, a receiving commanding means, and a restoring means, the 1st judgment processing, the 2nd judgment processing, reception instruction processing, and restoration processing can be performed. Therefore, in this invention, an effect that the same operation and effect as the invention according to claim 3 can be generated by various computers etc. which control an image forming means of an image forming device arises. If the limitation same to the 2nd judgment processing of this invention as the 2nd decision means according to claim 4 is given, the same operation and effect as the invention according to claim 4 can be generated.

[0026]

[Mode for carrying out the invention]Next, an embodiment of the invention is described with Drawings. Drawing 1 is a block diagram showing outline composition of the printing system 2 with which this invention was applied. The E-mail transmitting side which makes a subject the personal computer (henceforth a personal computer) 4, and the printer 6 in this printing system 2 as shown in drawing 1, The printer 22 as an image forming device connects and comprises the Internet 28 via the mail servers 24 and 26. Here, the printer 22 is provided with the following.

The printing unit 29 as an image forming means which prints on a recording form as recorded media (image formation).

The control part 10 as an image data processing apparatus which drives the printing unit 29 via the below-mentioned printer driver 30 grade.

The control part 10 is constituted centering on the microcomputer of well-known provided with CPU10a, ROM10b, RAM10c, etc.

[0027]One mail server 24 is a mail server provided in what is called BUROBAIDA, and the mail server 26 of another side is a mail server connected to the printer 22 in a specific company. In the following explanation, [the computer systems 8] By SMTP (Simple Mail Transfer Protocol : simple mail transfer protocol), various E-mails shall be transmitted to the Internet 28 via the mail server 24.

[0028]First, in the E-mail transmitting side, an operator transmits the usual mail which consists of text data with e-mail software etc. which are started with the personal computer 4. At a certain time, [application programs, such as a word processor spreadsheet software, and figure creation software,] An image of contents to send to a partner is created, it lets a printer driver (not shown) included in the personal computer 4

pass, and a print file which specified a desired format is created. This print file is described by predetermined page description language (for example, de-facto standard printer control language systems, such as PCL, PostScript, and GDI), also with the printer 6 connected to the personal computer 4, can be printed and can check an output. And this print file is transmitted to the partner point as an attachment using e-mail software.

[0029]An operator of the E-mail transmitting side replaces with a printer driver and chooses a facsimile driver (not shown) for a part to send a created image to a certain partner by a facsimile, and send a part to another partner by E-mail. And create a FAX data file (G3 compressed data and data format of TIFF) used as the same form as actually transmitting by a facsimile through the facsimile driver, and similarly with e-mail software, This FAX data file is sent to the partner point as an attachment of an E-mail.

[0030]When there is an input from image readers, such as an image scanner which is not illustrated in the personal computer 4, it is considered as a predetermined data format file (for example, standardized forms, such as TIFF and JPEG), and image data taken in from them is similarly attached to an E-mail, and is sent. An effective output is obtained when a graphics file which consists of these FAX data or image data has the capability to analyze the data in the printer 22 of a reception place.

[0031]It may be unsuitable that the data volume is very large and transmits as one file in the various above-mentioned data files also including what was described by page description language. In such a case, an operator attaches and transmits to each file after dividing a data file into plurality and dividing data which is the discernment information on dividing states, such as 1/4, 2/4, 3/4, and 4/4 (in the case of quadrisection). The personal computer 4 may perform division of such a data file and attachment of data automatically. Here, a data file in which data (henceforth m/n data) of a form of m/n (m and n are natural numbers) was attached in this way is equivalent to image data divided into plurality. If m/n data is data which expresses same contents substantially, it can apply various forms.

[0032]When transmitting an E-mail as mentioned above, e-mail software asks an operator for an input of various information required for e-mail transmission, for example, SMTP currently used, an address of the mail server 24, an address, a subject name, etc., and creates a mail header according to the set-up contents. As mentioned above, when a file of various forms is attached to an E-mail, an identifier which shows the attribute of the file is also collectively put into a mail header as file information.

[0033]And finally, e-mail software attaches the envelope 71 and the header 73 to the body 75 which consists of a message which consists of text data, or various files, constitutes E-mail 70 as shown in <u>drawing 2</u>, and transmits to the mail server 24. The above-mentioned m/n data is also written in in the header 73. When a data file corresponding to a two or more pages picture (a character string may be sufficient) is divided as mentioned above and data corresponding to one page is divided into two or more files, data showing the end in the every page is also written in in the header 73.

[0034]As shown in a control block diagram of <u>drawing 3</u>, SMTP server 32 of the mail server 26 receives an E-mail (usual e-mail and printing mail) by SMTP from the Internet 28 side. An E-mail addressed to mail server 26 is accumulated in the Moers pool 34 as an accumulation means among this E-mail, and others are again sent to the Internet 28 side.

[0035]The utility 31 for printing mail reception which receives e-mail from the mail server 26 to the printer 22 and from which directions are sent to the below-mentioned

printer driver 30 on the other hand according to the contents of the mail, There is the printer driver 30 which changes predetermined page description language, FAX data, etc. into image data which can be processed in the printing unit 29. It is also possible to analyze above-mentioned various page description languages in this printer driver 30, to have at least one kind of emulation with a function which changes into image data in it, and to have two or more emulation in it if needed. It is possible to analyze not only page description language for printers but FAX data, to analyze FAX emulation convertible into image data and a predetermined compression image form, and to also have a conversion function which can change into image data by adding a processing program.

[0036][the control part 10 containing this utility 31 for printing mail reception and printer driver 30] It also has a storage area (for example, inside of ROM10b) which manages a font which is needed in printing text data, and a storage area (for example, inside of RAM10c) which manages printing form. The utility 31 for printing mail reception analyzes a mail header of received mail, and when it is [whether an attachment is in it, and], the attribute of the attachment conducts analysis called something. And according to the analysis result, instructions are taken out to the printer driver 30.

[0037]For example, when it is judged that the text data of the message of the usual mail was inputted. It points to that to the printer driver 30, and in the printer driver 30, based on the above-mentioned font and printing form in the control part 10, this text data is changed into the image data of a predetermined format, and it outputs to the printing unit 29.

[0038]When it is the E-mail which was divided into plurality and attached in the above-mentioned m/n data, as shown below, the data of each file is combined, former data is restored, and it outputs to the printing unit 29. Next, processing of the utility 31 for printing mail reception performed in the control part 10 of the printer 22 is explained based on the flow chart of drawing 3.

[0039]If processing is started, the utility 31 for printing mail reception will perform S1 (: showing a step S is the same as that of the following), will access the POP server 38 in the mail server 26, and will ask the existence of e-mail. If the E-mail addressed to printer 22 is in the inside of the E-mail with which the POP server 38 was stored in the Moers pool 34 at this time, the information on that E-mail will be answered to the control part 10 side.

[0040]It shifts to S3 which will continue if there is an E-mail, and if there is no E-mail, it will stand by to S1 as it is. It is not necessary to always repeat processing of S1, and what is necessary is just to perform it to predetermined timing by timer interrupt etc. Therefore, the control part 10 can perform other processings in connection with the printer 22 also during standby in S1.

[0041]if an E-mail exists in the mail server 26 (S1:YES) and it shifts to S3 -- the mail server 26 -- the -- E-mail reception is carried out. That is, in processing of S3, the utility 31 for printing mail reception requires an E-mail addressed to POP client 36 of the POP server 38 of the mail server 26 as the POP client 36. The POP server 38 to meet this demand POP3 (Post Office Protocol: version 3 of a postoffice protocol), From the inside of the Moers pool 34, an E-mail is transmitted to the mailbox 40 prepared to the utility 31 for printing mail reception.

[0042]In S5 continuing, it is judged whether an E-mail received in S3 is the e-mail data divided into plurality. This judgment is made by checking existence of the above-

mentioned m/n data, for example. When it is not the divided e-mail data, it shifts to (S5:NO) and S7, and after pointing to printing a picture corresponding to data of the E-mail to the printer driver 30, it shifts to the above-mentioned S1. Then, the printer driver 30 analyzes data of the E-mail, outputs corresponding print data, and drives the printing unit 29. By this processing, a picture corresponding to data of an E-mail received in S3 can be formed in a recording form.

[0043]On the other hand, when an E-mail received in S3 is the e-mail data divided into plurality (S5:YES), it shifts to S11 and it is judged whether data is bundle ******. Here, various forms can be considered to a mass of e-mail data. For example, all the e-mail data (.) often also as a bundle divided in 1 page That is, when new-line data showing numbers and paragraphs of Drawings, such as "<u>drawing 1</u>" and "<u>drawing 2</u>", etc. are often also as a bundle in e-mail data further in all 1-/n-n/n, it is good also considering a range divided with those data as a bundle. It may be set up beforehand, and it is good also as a setup being possible which form to adopt as a bundle, and may be made to set up optimal form automatically according to the above-mentioned attachment freely with a navigational panel which is not illustrated.

[0044]When it judges that e-mail data is not together with all of a bundle in S11 (S11:NO), after memorizing the e-mail data to RAM10c in S13, it shifts to the above-mentioned S1. And when other e-mail data reaches the POP server 38 (S1:YES), it shifts to processing not more than S3 again.

[0045]While repeating the above processing, what was memorized in S13, and the thing received by S3 are united, and a mass of e-mail data carries out an affirmative judgment by a set and S11. Then, processing shifts to S15, and after combining with the data file before dividing the e-mail data of a mass of, it shifts to the above-mentioned S7. By this processing, the picture corresponding to a mass of above-mentioned e-mail data can be formed in a recording form.

[0046]thus, the e-mail data received in the printer 22 -- bundle ******** -- the e-mail data is memorized to RAM10c (S13), and it is printing by combining with the data file before division (S15) at the bundle ****** time (S7). For this reason, also when the e-mail data divided into two or more E-mails is received, restoration of the original picture is attained easily. In this embodiment, these processings are performed within the printer 22, without borrowing help, such as other computers. For this reason, other computers can be released from the processing in connection with combination of the above-mentioned e-mail data, etc., and the processing efficiency of the whole communications system can be raised.

[0047]In judgment (S15) of being bundle ******, the e-mail data may be made for e-mail data to carry out an affirmative judgment only at a bundle ****** case from a head. Such processing can be carried out by performing the first affirmative judgment in S15, when the e-mail data in which the m/n data of 1/n was attached is received for example. In this case, an E-mail can be printed sequentially from a head and restoration of the original picture becomes still easier. Since a picture is printed sequentially from a head, even if it makes still smaller a mass of above-mentioned unit, the original picture can fully be restored. For example, even if the predetermined length or the predetermined line of a picture is made into a bundle and it prints it one by one, the original picture can be restored easily. In this case, the storage capacity needed for RAM10c can be reduced, and the manufacturing cost of the printer 22 can be reduced good.

[0048]When two or more E-mails divided with the same number of division (n) are received simultaneously, both may mix. Then, ID is given for every E-mail and it may be judged in S15 whether e-mail data which has common ID is bundle ******. In this case, an E-mail can be certainly prevented from being mixed.

[0049]e-mail data received in the above-mentioned embodiment -- bundle ********, although the e-mail data was memorized to RAM10c and it has combined with a data file before division at the bundle ****** time, e-mail data -- bundle ******** -- the e-mail data may be stored in the Moers pool 34.

[0050]Next, such an embodiment is described. Drawing 5 is a flow chart showing other forms of processing of the utility 31 for printing mail reception. In this processing, it asks first the POP server 38 like [S51] the above-mentioned S1, and it is judged whether the mail server 26 has an E-mail. When there is nothing (S51:NO), it stands by as it is, and when there is an E-mail, it is judged whether they are (S51:YES) and the e-mail data divided by shifting to S53. When it is not the divided e-mail data, an E-mail is received like [(S53:NO) and S55] S3.

[0051]On the other hand, when there is e-mail data divided into the mail server 26, it judges whether the e-mail data is bundle ****** in (S53:YES) and the Moers pool 34 (S57), and processing of bundle ******** S51 and S53 is repeated. And e-mail data shifts to bundle ****** (S57:YES) and the above-mentioned S55 in the Moers pool 34, and an E-mail is received.

[0052]After receiving an E-mail in S55, in S61, to divided e-mail data, that data is combined like S15 (that is, this processing is bypassed when a negative judgment is carried out by S53), and it prints like the above-mentioned S7 S63. this processing -- e-mail data -- bundle ******** -- that e-mail data is stored in the Moers pool 34 (S57), that data is received at the bundle ****** time (S55), and it is printing by combining with a data file before division (S61) (S63). For this reason, also when the mail server 26 receives e-mail data divided into two or more E-mails, restoration of the original picture is attained easily.

[0053]In this embodiment, these processings are performed within the printer 22, without borrowing help, such as other computers. For this reason, other computers can be released from processing in connection with combination of the above-mentioned e-mail data, etc., and processing efficiency of the whole communications system can be raised. In this embodiment, since the bundle ******** printer 22 does not receive an E-mail, e-mail data can reduce further a storage capacity needed for RAM10c, and can reduce a manufacturing cost of the printer 22 further. This embodiment can also consider various forms as mentioned above to a mass of e-mail data.

[0054]In S57, the e-mail data may be judged to carry out the affirmative judgment also of this embodiment only at a bundle ****** case from a head. In this case, an E-mail can be printed sequentially from a head and restoration of the original picture becomes still easier. Since a picture is printed sequentially from a head, even if it makes still smaller a mass of above-mentioned unit, the original picture can fully be restored. For example, even if predetermined length or a predetermined line of a picture is made into a bundle and it prints it one by one as mentioned above, the original picture can be restored easily. In this case, quantity of an E-mail stored in the Moers pool 34 can be reduced, and other communications which went via the mail server 26 can be performed still more smoothly.

[0055]In each above-mentioned embodiment, processing in S7 and the printer driver 30, [

the print-data creation processing according to claim 6] In S5, S11 to the 1st judgment processing according to claim 6, [the 2nd judgment processing according to claim 6] In S13, S15 to the memory processing according to claim 6, [the restoration processing according to claim 6] Carry out considerable, respectively and processing in S63 and the printer driver 30, [the print-data creation processing according to claim 7] S53 -- the 1st judgment processing according to claim 7 -- S57 is equivalent to the 2nd judgment processing according to claim 7, S55 is equivalent to the reception instruction processing according to claim 7, and S61 is equivalent to the restoration processing according to claim 7, respectively.

[0056][a storage area of ROM10b of the control part 10 which memorized CPU10a of the control part 10 and a program of each above-mentioned processing which perform each above-mentioned processing] It is equivalent to Claim 1 or a print-data preparing means in a claim of the low rank, the 1st decision means, the 2nd decision means, a memory measure, a restoring means, Claim 3 or a print-data preparing means in a claim of the low rank, the 1st decision means, the 2nd decision means, a receiving commanding means, and a restoring means, respectively. RAM10c is also equivalent to Claim 1 or a memory measure in a claim of the low rank, and a buffer for reception which the control part 10 does not illustrate is equivalent to a reception means in each claim. This invention is not limited to the above-mentioned embodiment at all, and can be carried out with various forms in the range which does not deviate from a gist of this invention. For example, as a storage of this invention, various forms besides elements, such as ROM and RAM, can be considered. For example, CD-ROM, a floppy disk, a magneto-optical disc, a hard disk, etc. may be sufficient, and it may be a file server on the Internet.

[0057]In each above-mentioned embodiment, although a storage of this invention is made to read into the control part 10 of the printer 22, it can also be used, making the storage according to claim 7 able to read into devices which output print data not only to image forming devices, such as a printer, but to a printer etc., such as a print server and a personal computer. In this case, devices, such as a print server and a personal computer, can constitute the image data processing apparatus according to claim 3 or 4. The storage of this invention may not be one and may be divided or more into two. For example, in the storage according to claim 7, a program of (S51-S61) is memorized by personal computer, a print server, etc. from the 1st judgment processing to reception instruction processing to a storage which can be read from (S51-S55) or the 1st judgment processing to restoration processing, A program of restoration processing and print-data creation processing (S61, S63), or print-data creation processing (S63) is memorizable with a printer etc. to a storage which can be read.

[Translation done.]